



# **EMC VNX storage arrays**

## **ONTAP FlexArray**

NetApp

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# EMC VNX storage arrays

You must meet specific requirements when configuring EMC VNX storage arrays to work with ONTAP systems that use the array LUNs. These requirements include setting configuration parameters on your storage arrays and deploying only supported configurations.

## Required parameters for EMC VNX storage arrays with ONTAP systems

Certain parameter settings are required on the storage array for the storage array to work successfully with ONTAP systems.

Host configuration parameters that must be set on the storage array are listed in the following table.

Parameter	Setting
Initiator type	CLARiiON/VNX
Array Com Path	Enabled
Failover mode	4
Unit serial number	LUN
Host name	User-supplied host name and port number
IP address	Unique fake IP address You must ensure that you have not entered this IP address anywhere else in the storage array configuration, and that it is not an IP address that is present on the network.

## How EMC VNX storage array control access to data

EMC VNX array use Storage Groups to control access to data. A Storage Group is one or more LUNs within the storage array that can be accessed only by the host or hosts that you associate with the array LUNs. A host cannot access or modify data in any array LUNs that are not part of its Storage Group.

ONTAP supports multiple Storage Groups if these rules are followed:

- Switch zoning must define which target ports the FC initiator ports on the ONTAP system use to access each array LUN group.
- LUN masking must be used to restrict host access to array LUNs.
- Storage Groups must define which array LUN groups are presented to each FC initiator port.

- One FC initiator port pair on each ONTAP system is required for each array LUN group.

If array LUN neighborhoods are used, the V-Series systems in the same neighborhood must be in the same Storage Group.

## Limitation on array LUN numbering with EMC VNX array

EMC VNX storage array only support array LUN numbering from 0 through 255. Array LUNs that are numbered beyond this range are not visible to ONTAP.

## Guidelines for enabling ALUA on EMC VNX storage arrays

Support has been added for Asymmetric Logical Unit Access (ALUA) with CLARiiON and VNX arrays.

By default, support for ALUA is enabled in ONTAP. But to use it, ALUA must be enabled on the storage array.

You should enable ALUA only on new configurations. You should not enable ALUA in an existing configuration.

If you are setting up ALUA on the storage array, you must ensure that all hosts in a Storage Group are in the same failover mode, that is failover mode 4 (ALUA).

## ALUA behavior of VNX2 storage arrays

Although all EMC CLARiiON and VNX arrays use ALUA (asymmetric active-active) failover mode, VNX2 storage arrays might differ in their ALUA behavior.

Like all other EMC array LUNs, VNX2 array LUNs presented to the ONTAP system from dynamic disk pools use ALUA failover mode. However, VNX2 array LUNs presented to the ONTAP system from traditional RAID groups use active-active failover mode, with all the paths being reported as **AO** (active optimized). This behavior of the array LUNs changes during certain operations, such as Snapshot creation in the backend array.

Therefore, to maintain consistent behavior of VNX2 array LUNs, ONTAP treats these LUNs as ALUA, irrespective of whether these array LUNs are presented from traditional RAID groups or from dynamic disk pools.

In such a situation, the I/O requests for a given VNX2 LUN are distributed only over the paths reported to be in **INU** (in-use) state and not over all the paths reported as **AO** (active-optimized).

For example, if you have four paths to a VNX2 array LUN presented to the ONTAP system from a traditional RAID group, all of the paths are reported as **AO**; however, only two of the paths are in **INU** state, while the two other paths are not used but are in **RDY** (ready) state.

## EMC VNX storage array families

ONTAP does not support mixing some types of storage in aggregates. To help you determine the array LUNs that can be mixed in an aggregate, the storage arrays from each vendor are grouped into families. When you create aggregates, you cannot mix array LUNs from different vendors and from different storage array families in the same

aggregate.

Storage arrays in the same family share the same performance and failover characteristics. For example, members of the same family all perform active-active failover, or they all perform active-passive failover. More than one factor might be used to determine storage array families. For example, storage arrays with different architectures would be in different families even though other characteristics might be the same.

The following EMC VNX storage array families are supported with ONTAP systems:

- Family 1: VNX1
- Family 2: VNX2

These arrays use the asymmetric active-active (ALUA) failover mode.

The Interoperability Matrix is the final authority for information about the storage arrays supported for each vendor.

### **Related information**

[NetApp Interoperability Matrix Tool](#)

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